

'Their first patient'

Med students mine wealth of knowledge in donated bodies

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MORGANTOWN — Deep inside her patient's hand is a nerve leading to the fingers, and student Stephanie Fazio is determined to find it.

She picks and scrapes away muscle and skin, but her patient, a cadaver she knows only by a number, feels nothing. When finally the head of the thin, white nerve ending surfaces, Fazio can file that lesson away and move on to the next knowing she had harmed no one.

Bodies donated to science let medical students explore the intricacies of the body without fear of causing pain or damage to patients. The educational worth of the experience

cannot be duplicated, students and instructors say.

"It's a totally different experience," said Fazio, a first-year physical therapy student at West Virginia University. "To actually get a feel for how the body's made up, you have to go inside," she explained.

"I knew each body was different, but I didn't know they varied that much. In textbooks, you see a lot of bodies, but each one is the same."

Medical students working on human cadavers happen across a range of conditions and body types, explained Dr. Richard Dey, professor and chair of neurobiology and anatomy at WVU and chair of the West Virginia Anatomical Board.

The board oversees the Human Gift Registry, an avenue through which people donate their bodies to medical science. The registry supplies cadavers to WVU, Marshall University



Dr. Robert Pope (facing away) talks students through human cadaver dissection at West Virginia University. The 32-year anatomy instructor said the experience gives medical students an unparalleled understanding of the body.



“Most of it is a general awareness of what we do,” Dr. Richard Dey, who oversees WVU’s Human Gift Registry, said of the public’s grasp of how bodies donated to medical science are used

and the West Virginia School of Osteopathic Medicine in Lewisburg, Dey said.

Human donations to the registry run the gamut of conditions, he said: Heavy people, muscular people, skinny people and people who were big but lost weight; people with cancer, emphysema or hysterectomies; people with pacemakers, artificial hips and other life-sustaining gizmos.

“They see what any physician would see in their practice — a wide variety of patients,” Dey said. “This really is their first patient.”

Dead or not, the first cut into a real person hardly comes easy, agreed Kendra Hamilton and Haley Rush, students with Fazio in the physical therapy program’s six-week summer anatomy class.

“We were timid about cutting at first,” Rush said. “We had to get over that.”

The pungent stench of formaldehyde hangs over the lab. Groups of students lean over blue tarp bags, examining arms and chests, plying apart muscle, fat and bone.

Rush and Hamilton probe a forearm for some decidedly elusive carpal tunnel syndrome, a condition caused by a pinched nerve in the wrist. The damaged nerve is somewhere in the tangle of nerves and vessels laid out before them.

“They all look alike,” Hamilton said. “I expected it to be a good learning tool, which it is, but I didn’t think it would be as confusing as it is.”

“It takes time,” Rush said. “It’s not color coded; it’s not labeled. It just takes time.”

Physical therapists need to know the nooks and crannies of the body, the places where nerves and deep muscles

hide, said John Petronis, assistant chairman of physical therapy at WVU.

“We always go back to the anatomy,” he said. “Everything we evaluate, we’re going to be touching patients. This makes a big difference as far as that is concerned. It’s a map of the body.”

Petronis dissected cadavers in the same room his students use now. Little has changed since then. The knowledge is never tapped, he said.

“This is one of the hardest sciences to remember,” Petronis said. “There is as much detail as you want. When you get into anatomy, you can keep learning until the day you die.”

'I'm glad to do it'

People donate their bodies to science for many reasons, but contributing to education is among the more popular, said Margie Roby, the registry's coordinator.

"When someone donates their whole body, they are going to affect hundreds of people with the learning experience for years and years to come," she said. "You get a lot of people who are interested in helping mankind and feel like it's giving back."

Since the donation costs the person and their family nothing, some people also do it to save money, she said.

Thirty years of teaching anatomy class at Marshall University prompted Dr. William Rhoten to register with the program three years ago. With his encouragement, his parents also donated their bodies, he said.

Through working on cadavers, students not only hone their observational and motor skills, but also become more accustomed to death and disease, he said.

"Donors do provide an important learning tool in the students' maturing in medicine," he said.

"I participated in the process with students for over 30 years and I think it's a valuable tool to have available. If I can continue that process post mortem, I'm glad to do it."

Rhoten's family did not exactly share his enthusiasm about donating his remains. His wife expressed mixed feelings on his decision, but supported it if his children did also, he said.

"I wouldn't say any of them were enthusiastic, but when you're in your 20s, addressing the issue of one of their parents being dead was tough to think about," he said.

"It was OK, but it wasn't like 'Yeah

Dad, that's a great idea.' There wasn't anything really positive or negative from any of the three."

Had his family not supported it, he would not have registered to donate, Rhoten said.

"They're the ones who will deal with my decision," he said.

"I can understand how some folks can feel [uncomfortable]. Basically your whole body is going to be laid out for several individuals to stare at, to poke at, to cut into. [But] if I didn't feel it was important, I wouldn't have encouraged my parents to do it and wouldn't encourage others."

The gift registry does not accept bodies at the center of family disputes, even if one person disagrees, said Margie Roby, the registry's coordinator.

Other rejected donations include: people with infectious diseases; people over 300 pounds; those with unhealed surgeries; people who died of trauma or suicide, or had an autopsy; or people who died when no one was around, because it's hard to know how long they have been dead.



The vault at WVU houses the ashes of people who donated their bodies to science. Each year, WVU hosts a memorial service for donors that draws about 400 friends and family members, Dey said.

Around 250 of the 323 donations to the registry in 2005 went to WVU, Roby said. Marshall and WVSOM got 44 and 22, respectively.

WVU used only about 100 of the cadavers it received that year, Dey said. The rest were shipped to other schools such as Duquesne University in Pittsburgh and the far-flung Oman Medical College in the Middle East.

The remains come back to West Virginia where, like the rest of the used cadavers, they are cremated and then returned to the family or placed in WVU's mausoleum, Dey said. The vault holds 30 to 40 years of ashes, he said.

Students in fields from physical therapy to dentistry work on the cadavers brought in through the gift registry, Dey said.

Students must treat the donated bodies with the same respect they would a real patient, he said. Before heading into the lab, students sign a form swearing not to disrespect the bodies in such ways as "conversational improprieties." In other words, cracking wise, Dey said.

Professors set objectives and give exams throughout the lab, so students do not just idly cut away.

"If they don't accommodate those objectives it's immediately obvious because they won't pass the exams," Dey said. "They wouldn't last in there if they were just hacking away at stuff."

At the far end of the lab, Andrew Morgan ties back the arm of his cadaver, the second he has worked on. He unflinchingly turns from body to book, body to book: "You get used to it. You have to," he said.

He gently tugs on some wrist tendons. The fingers of his cadaver curl. Try finding that in a book, he says.

"Books are two-dimensional," he said. "This way we get a feeling of the relationship of everything. When they say 'if you pull this tendon these fingers move' we can actually see that."

Some schools replaced their cadaver programs with computers and simulated bodies, a phenomenon Dr. Robert Pope finds puzzling.

"Pictures are important but they don't really give you a sense of where things are in the human body," said Pope, who retired after 32 years of teaching anatomy.

"Books don't give you the variations you see. There are some hefty programs that have gone away from cadavers and I don't know how they do it. You can take as many images and pictures as you want and you can't replicate it."

Across from Fazio, Josh Romage holds a piece of arm skin as Zach Grimm carefully separates it from the muscle.

"How many people get this experience?" Grimm asks. "Medical students and who else?"

"It's kind of freaky, but if it can enhance the way we treat people, it's a good experience," Romage says.

"The body is something we're going to use throughout the rest of the practice. We see all the pictures, but until you see it first hand ..."

On the Web: Learn more about the Human Gift Registry at
www.anatomy.hsc.wvu.edu/hgr/

To contact the WVU Human Gift Registry call 304.293.6322 or e-mail to
humangiftregistry@hsc.wvu.edu.

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